Attach to Paper #13

L Number	Hits	Search Text	DB	Time stamp
1	1022	zander-$.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:18
7	3	zander-$.in. and cd34	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:23
13	41	cd34 with (surface adj2 marker)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:53
19	2	(cd34 with (surface adj2 marker)) with vector	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:24
25	0	(cd34 with (surface adj2 marker)) with plasmid	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:25
31	2	(cd34 with (surface adj2 marker)).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:25
37	5	(cd34 with (surface adj2 marker)).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:28
43	6	cd34 with transgene	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:28
49	3	cd34 with transgene with (plasmid or vector)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:28
55	3	(cd34 with transgene) not (cd34 with transgene with (plasmid or vector))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:28
61	8	transgene with (surface adj2 marker)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:57
67	7	(transgene with (surface adj2 marker)) and retrovirus	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:58
73	0	(transgene with (surface adj2 marker)) and retrovir44	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:58
79	7	(transgene with (surface adj2 marker)) and retrovir$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/04 08:58

(FILE 'HOME' ENTERED AT 09:01:33 ON 04 NOV 2002)

FILE 'MEDLINE, EMBASE, CAPLUS, BIOSIS' ENTERED AT 09:01:46 ON 04 NOV 2002

L1	4622	S (ZANDER, ?)/IN,AU
L2	135	S L1 AND CD34
L3	693	S CD34 (4N) MARKER
L4	4	S L2 AND L3
L5	2	DUPLICATE REMOVE L4 (2 DUPLICATES REMOVED)
L6	497	S CD34 (S) SURFACE (S) MARKER
L7	17	S L6 (S) TRANSGENE
L8	10	DUPLICATE REMOVE L7 (7 DUPLICATES REMOVED)
L9	33	S CD34 (2W) (SURFACE (2W) MARKER)
L10	33	S L9 NOT L7
L11	14	DUPLICATE REMOVE L10 (19 DUPLICATES REMOVED)

L8 ANSWER 7 OF 10 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:299165 BIOSIS
DOCUMENT NUMBER: PREV200100299165
TITLE: In vivo studies on the effect of expressing naturally occurring truncated CD34 on hematopoietic progenitors and differentiated blood cells.
AUTHOR(S): Fehse, B. (1); Schiedlmeier, B.; Li, Z.; Klump, H.; Wahlers, A.; Putimtseva-Scharf, K. (1); Ostertag, W.; Zander, A. R. (1); Baum, C.
CORPORATE SOURCE: (1) Bone Marrow Transplantation, University Hospital Eppendorf, Hamburg Germany
SOURCE: Blood, (November 16, 2000) Vol. 96, No. 11 Part 2, pp. 119b. print.
Meeting Info.: 42nd Annual Meeting of the American Society of Hematology San Francisco, California, USA December 01-05, 2000 American Society of Hematology
. ISSN: 0006-4971.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English
AB We recently demonstrated the usefulness of a naturally occurring splice variant of human **CD34** with a shortened intracellular domain (tCD34) as a gene transfer **marker**. Expression of tCD34 allows marking of gene-modified cells that normally do not express **CD34**, and their tracking by flow cytometry. In addition, gene-modified cells could be enriched to high purity using magnetic cell sorting (MACS) devices approved for clinical use (Molecular Therapy 1, 448-456). Truncated **CD34** lacks most of the putative signal transduction domains of **CD34**; however, a possible interference with cellular functions especially in hematopoietic cells could not be excluded per se. We therefore analyzed the impact of tCD34 expression on hematopoietic stem cell engraftment and differentiation in a mouse model (C57Bl/6). Control mice received marrow transduced with retroviral vectors expressing the full-length protein of human **CD34**, human truncated nerve growth factor receptor, or enhanced green fluorescent protein. We found that in mice transplanted with retrovirally transduced bone marrow cells tCD34 was detectable by flow cytometry in all hematopoietic lineages at constant levels (up to 50%) during the whole period of observation (7 months), similar to the efficiency obtained with the other markers tested. In vitro activation of peripheral blood lymphocytes which were mostly tCD34-negative led to a strong increase in **transgene**-expressing cells. For serial transplantation, bone marrow cells were enriched by MACS to high purity (>90%) based on the expression of human tCD34. A first analysis of those mice after 10 weeks demonstrated that all lineages of hematopoiesis were normally reconstituted and almost exclusively tCD34-positive. We are currently investigating the influence of tCD34 expression on behavior and differentiation potential of human **CD34** + progenitor cells. In summary, the present study may generate new insights regarding the functional role of tCD34 in hematopoiesis and its potential utility as a cell **surface marker** for human gene therapy.

L5 ANSWER 1 OF 2 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000419647 MEDLINE
DOCUMENT NUMBER: 20394332 PubMed ID: 10933966
TITLE: **CD34** splice variant: an attractive **marker** for selection of gene-modified cells.
AUTHOR: Fehse B; Richters A; Putimtseva-Scharf K; Klump H; Li Z; Ostertag W; **Zander A R**; Baum C
CORPORATE SOURCE: Bone Marrow Transplantation, Heinrich-Pette-Institute for Experimental Virology and Immunology, Martinistrasse 52, Hamburg, D-20246, Germany.
SOURCE: MOLECULAR THERAPY, (2000 May) 1 (5 Pt 1) 448-56. Journal code: 100890581. ISSN: 1525-0016.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000915
Last Updated on STN: 20000915
Entered Medline: 20000907

AB This study presents a promising selection system for gene-modified cells other than human hematopoietic progenitor and endothelial cells based on transgenic expression of human **CD34**. Three retrovirally transduced variants of **CD34** were compared, differing in the length of their cytoplasmic domains. These were the full-length transmembrane protein (flCD34), a truncated form (tCD34) that is found as a naturally occurring splice variant and has a partial deletion of the cytoplasmic domain for signal transduction, and an engineered variant which is completely deprived of its cytoplasmic tail (dCD34). All three variants allowed selection of gene-modified cells using commercially available immunoaffinity technology. However, examination by flow cytometry as well as by Southern, Northern, and Western blot revealed that dCD34, as opposed to tCD34, is not stably anchored in the membrane and thus is expressed at low levels on the surface of transduced cells. Therefore, tCD34 was chosen as the more promising candidate for a clinically applicable cell surface marker. We show that gene-modified human primary T lymphocytes expressing tCD34 can be enriched to high purity (>95%) using clinically approved immunoaffinity columns. In addition, we demonstrate the utility of tCD34 for surface marking of murine hematopoietic cells in vivo, including primary T lymphocytes detected 9 weeks after bone marrow transplantation.